

IN THE SPECIFICATION

1. Please amend paragraph 17 as follows.

[0017] In accordance with the principles of the present invention, as embodied and broadly described, the present invention provides a method for manufacturing a flat panel display device that may be practiced by forming anode electrodes on a substrate, forming phosphor layers on the anode electrodes, immersing the substrate in a solution including dispersed carbon-based material, ~~adhering~~ coating the carbon-based material adhering onto a surface of the phosphor layers by electrophoresis, and cleaning and then drying the substrate.

2. Please amend paragraph 33 as follows.

[0033] Some field emission displays may attempt to correct some of these problems by coating the surfaces of each of the phosphor layers with a conductive layer. The conductive layers increase the illumination efficiency of the phosphors by interaction with the electron beams so that brightness is improved. Such field emission displays have conductive material formed between phosphors on an anode electrode. An example of the conductive material is aluminum metal film. The conductive material removes electric charges that may form on the surfaces of the phosphors. After providing phosphors on the anode electrode and the conductive material on the phosphors, portions of the phosphors, that is, non-active surface layers formed on ~~particle~~ the surfaces of the ~~phosphors~~ phosphor particles, and the conductive material deposited on the phosphors are removed by a method such as sputtering, etching, or ion milling.

3. Please amend paragraph 48 as follows.

[0048] Also, conductive layers 20 are formed on outer surfaces of the phosphor layers 18. Conductive layers 20 induce conduction paths between phosphor particles of phosphor layers 18 to prevent the easy accumulation of electric charges on phosphor layers 18 during operation of the field emission display. Conductive layers 20 may be made of a carbon-based material in the practice of the present invention. For example, with reference to FIG. 2, conductive layers 20 may be formed of carbon nanotubes that adhere to the exposed surfaces of the ~~phosphors of~~ phosphor molecules of the phosphor layers 18. FIG. 2 is a partial sectional view of anode substrate 4 for the flat panel display of FIG. 1, constructed in accordance with the principles of the present invention.

4. Please amend paragraph 50 as follows.

[0050] Referring now to FIG. 3, a schematic view used to describe a method for manufacturing a conductive layer according to an embodiment of the present invention, first, following the formation of anode electrodes 16 and phosphor layers 18 on the facing surface 4a of the second, or anode, substrate 4 as described above, anode substrate 4 is placed in a tank 30 filled with a solution 31 that contains carbon nanotubes. Solution 31 is an organic solvent or pure water containing metal salt and a dispersion agent such as a dispersant. Also, solution 31 is preferably placed in another tank through which ultrasonic waves are passed for a predetermined amount of time in order that the carbon nanotubes do not become purified and the purified carbon nanotubes are dispersed.

5. Please amend paragraph 51 as follows.

[0051] Anode substrate 4 is submerged in a tank 30 below the surface of solution 31, at a predetermined distance from an electrode plate 34 that is also positioned within the tank 30. An

external power source such as a battery 32 is connected between electrode 34 and cathode electrodes 16, which are already formed on anode substrate 4. In this state, a predetermined bias voltage is ~~established~~ applied between electrode plate 34 and cathode electrode 16, and a direct current ~~is passed~~ flows through electrode plate 34 and anode electrodes 16 for a period of between one second and a few minutes. As a result, these carbon nanotubes which are dispersed in solution 31 move toward anode substrate 4 and eventually adhere to the exposed surfaces of the phosphor particles that form phosphor layers 18. When this process is completed, anode substrate 4 is removed from the tank 30, cleaned with an organic solvent or with pure water, then dried, thereby completing manufacture of the conductive layers 20.

6. Please amend paragraph 52 as follows.

[0052] With respect to the carbon nanotubes dispersed in solution 31 becoming purified during this process, it is preferable that the carbon nanotubes have a length of approximately 5 micrometers (μm) or less. Also, since the presence of the ~~dispersent~~ dispersant included in solution 31 may actually induce cohesion of the carbon nanotube particles at the first stage when the carbon nanotube particles are ~~[[first]]~~ dispersed in solution 31, it is preferable that the ~~dispersent~~ dispersant be either diluted or be omitted from the process.

7. Please amend paragraph 53 as follows.

[0053] First and second substrates 2~~[[,]]~~ and 4 ~~having respectively formed thereon~~ where the electron emission assembly and the illumination assembly are formed, respectively, as described above, are interconnected with a predetermined gap therebetween ~~and with~~ in a manner that the

electron emission assembly and the illumination assembly ~~facing one another~~ face each other. A sealant (not shown) is ~~provided around~~ applied on a circumference of surfaces of the first and second substrates 2 and 4 facing each other to interconnect these elements as an ~~integral~~ integrated and unitary single structural monolithic unit. Before making this structural connection of the first and second substrates 2 and 4, spacers 22 are provided therebetween at non-pixel regions. The spacers 22 maintain the predetermined gap between the first and second substrates 2 and 4.

8. Please amend paragraph 57 as follows.

[0057] To improve the degree of dispersion of the carbon nanotubes, the solution may undergo an ultrasonic wave process for roughly sixty minutes. The second substrate 4 is then immersed in the solution, and a bias voltage is applied to the electrode plate 34 and the anode electrodes 16 for 20 seconds. A bias voltage of approximately 20 volts (V) is applied through a power source 32. As a result, the carbon nanotubes dispersed in the solution ~~[[adher]]~~ adhere to phosphor layers 18. Anode substrate 4 is then removed from the solution, cleaned for approximately ten seconds, and dried for about sixty minutes at a temperature of approximately 100° Celsius (°C) to thereby complete the formation of conductive layers 20. The field emission display of the comparative exemplar is configured identically as the first example of the present invention, except that the comparative exemplar does not include the formation of conductive layers.

9. Please amend paragraph 59 as follows.

[0059] With reference to FIGS. 5 and 6, the field emission display constructed according to the first embodiment of the present invention may also include black matrix layers 24 formed on the

second substrate 4 interposed between phosphor layers 18 and anode electrodes 16. Black matrix layers 24 are formed of electrically conductive materials and serve to improve the contrast of the field emission display. The black matrix layers 24 may be mounted ~~between~~ without physically contacting the anode electrodes 16 as shown in FIG. 5, where interstices or gaps 24a occur between the sidewalls of neighboring anode electrodes 16 and black matrix layers 24, or alternatively, black matrix layers 24 may be mounted between and physically contact anode electrodes 16 as shown in FIG. 6. In the latter case, the black matrix layers 24 also physically contact the conductive layers 20.

10. Please amend paragraph 61 as follows.

[0061] In the case where the black matrix layers 24 are formed in physical contact with anode electrodes 16, such as is illustrated by FIG. [[5]] 6, there are limitations given with respect to the forming of the phosphor layers 18 (for example, it is not possible to use electrophoresis to form phosphor layers 18). However, such a configuration allows for the current-sending effects of black matrix layers 24 to be maximized.

11. Please amend paragraph 17 as follows.

[0062] In the flat panel display device of the present invention, as a result of the improvements made in the conductive layers 20 formed on the phosphor layers 18, when the electrons emitted from the electron emission assembly strike the phosphor layers 18, electric charges do not accumulate on the surfaces of phosphor layers 18 and instead are induced to travel the outside of the video display device. This improves overall brightness of the visual images broadcast by the display device to its audience while concomitantly increasing the lifespan of phosphor layers 18.